PATENT APPLICATION

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Attorney Docket No.:	105557	Examiner:	Unknown
Applicant:	Thomas E. Mallouk et al.	Group Art Unit:	

Title: METHOD OF SCREENING COMPOSITIONS FOR ELECTROCATALYTIC ACTIVITY IN A GAS DIFFUSION ELECTRODE

PRELIMINARY AMENDMENT

Assistant Commissioner for Patents
Washington, D.C. 20231

Dear Sir:

IN THE CLAIMS:

Please amend Claims 1, 3, 13, 17 and 25.

1. 1. (Amended) A combinatorial screening apparatus comprising:
   a) a cell body containing a fluid inlet;
   b) a fluid permeable, conductive, catalyst array support positioned adjacent to the cell body, said catalyst array support having multiple locations for supporting solids;
   c) a catalyst mask positioned adjacent to the catalyst array support, said catalyst mask defining holes arranged in alignment with the multiple locations for supporting solids of the catalyst array support; and
   d) a cell cover positioned adjacent to the catalyst array support, said cell cover defining an opening for monitoring of the solids.

3. (Amended) The apparatus of Claim 1 further comprising a diffuser positioned between the catalyst array support and fluid inlet of the cell body.

13. (Amended) A combinatorial screening apparatus comprising:
   a) a catalyst array support backing;

b) a conductive catalyst array support positioned adjacent to the support backing, said catalyst array support having multiple locations for supporting solids;

c) a catalyst mask positioned adjacent to the catalyst array support, said catalyst mask defining holes arranged in alignment with the multiple locations for supporting solids of the catalyst array support; and

d) a cell cover positioned adjacent to the catalyst array support, said cell cover defining an opening for monitoring of the solids.

17. (Amended) A method for screening an array of solids for electrocatalytic activity comprising:

a) depositing the solids of the array on a catalyst array support;

b) placing a catalyst mask over the catalyst array support, said mask defining holes arranged in the same pattern as the solids of the array;

c) contacting the array of solids on the catalyst array support masked by the catalyst mask with a reagent fluid and a fluid containing an ion concentration indicator;

d) applying a potential to the catalyst array support;

e) applying excitation radiation to said catalyst array support;

f) measuring emission radiation emitting through the holes of the catalyst mask; and

g) determining electrocatalytic activity of the solids in the array from the emission radiation measurements.

25. (Amended) A bulk catalyst testing apparatus comprising:

a) a bulk cell body containing a first and a second fluid inlet and a first and a second fluid outlet;

b) a fluid permeable bulk catalyst support structure having a catalyst thereon positioned adjacent to the bulk cell body and in alignment with the first fluid inlet and the first fluid outlet of the bulk cell body; and

c) a bulk cell cover positioned adjacent to the bulk catalyst support structure, said bulk cell cover defining a cavity to allow for fluid contact with the catalyst and monitoring of the catalyst.

No new matter is added by these amendments. Attached are original Claims 1,3, 13 17 and 25 marked to show the amendments to the claims.

Respectfully submitted,

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MM:pb

1. (Amended) A combinatorial screening apparatus comprising:

a) a cell body containing a fluid inlet;

b) a fluid permeable, conductive, catalyst array support positioned adjacent to the cell body, said catalyst array support having multiple locations for supporting solids;

c) a catalyst mask positioned adjacent to the catalyst array support, said catalyst mask [having material removed to form] <u>defining</u> holes [where the holes are] <u>arranged</u> in alignment with the multiple locations for supporting solids of the catalyst array support; and

d) a cell cover positioned adjacent to the catalyst array support, said cell cover [having material removed to allow] <u>defining an opening</u> for monitoring of the solids.

3. (Amended) The apparatus of Claim 1 further comprising a [gas] diffuser positioned between the catalyst array support and fluid inlet of the cell body.

13. (Amended) A combinatorial screening apparatus comprising:

a) a catalyst array support backing;

b) a conductive catalyst array support positioned adjacent to the support backing, said catalyst array support having multiple locations for supporting solids;

c) a catalyst mask positioned adjacent to the catalyst array support, said catalyst mask [having material removed to form] <u>defining</u> holes [where the holes are] <u>arranged</u> in alignment with the multiple locations for supporting solids of the catalyst array support; and

d) a cell cover positioned adjacent to the catalyst array support, said cell cover [having material removed to allow] <u>defining an opening for</u> monitoring of the solids.

17. (Amended) A method for screening an array of solids for electrocatalytic activity comprising:

a) depositing the solids of the array on a catalyst array support;

b) placing a catalyst mask over the catalyst array support, said mask [having material removed to form] defining holes [where the holes are] arranged in the same pattern as the solids of the array;

c) contacting the array of solids on the catalyst array support masked by the catalyst mask with a reagent fluid and a fluid containing an ion concentration indicator;

d) applying a potential to the catalyst array support;

e) applying excitation radiation to said catalyst array support;

f) measuring emission radiation emitting through the holes of the catalyst mask; and

g) determining electrocatalytic activity of the solids in the array from the emission radiation measurements.

25. (Amended) A bulk catalyst testing apparatus comprising:

a) a bulk cell body containing a first and a second fluid inlet and a first and a second fluid outlet;

b) a fluid permeable bulk catalyst support structure having a catalyst thereon positioned adjacent to the bulk cell body and in alignment with the first fluid inlet and the first fluid outlet of the bulk cell body; and

c) a bulk cell cover positioned adjacent to the bulk catalyst support structure, said bulk cell cover [having material removed] defining a cavity to allow for fluid contact with the catalyst and monitoring of the catalyst.